

PATENT APPLICATION
Q-67999

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Pascal AGIN, et al.

Appln. No.: 37 CFR 1.53(b) Continuation of
09/348,005, filed July 6, 1999

Confirmation No.: NOT YET KNOWN

Group Art Unit: 2681

Filed: January 7, 2002

Examiner: T. LEGREE

For: A METHOD FOR IMPROVING PERFORMANCES OF A MOBILE
RADIOCOMMUNICATION SYSTEM USING A POWER CONTROL ALGORITHM

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Amend the specification by inserting before the first line the sentence:

This is a continuation of Application No. 09/348,005 filed July 6, 1999, the disclosure of
which is incorporated herein by reference.

Page 2, between lines 24 and 25, insert the following heading:

Summary of the Invention.

line 36, delete "Summary of the invention"

Page 7, first, paragraph, please amend as follows:

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37 C.F.R. § 1.53(b) Continuation of 09/348,005

- if the transmission rate has just changed , at step 23 the transmit power is increased by $[10 \log(\text{SIR}_2/\text{SIR}_1) - \delta]$ dB,

IN THE CLAIMS:

Please cancel claims 1-16 without prejudice or disclaimer.

Please add the following new claims 17-50:

17. (New) A method for improving performances of a mobile radiocommunication system using a closed-loop power control algorithm, said method comprising, upon the occurrence of a significant change in the required transmit power, performing a step of changing the transmit power according to a corresponding change in the required transmission quality target value.

18. (New) A method according to claim 17, wherein said step of changing the transmit power according to a corresponding change in the required transmission quality target value is performed in addition to the power control algorithm.

19. (New) A method according to claim 17, wherein said significant change in the required transmit power includes a change in the transmission rate.

20. (New) A method according to claim 17, wherein said corresponding change in the required transmission quality target value has a predetermined value.

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21. (New) A method according to claim 20, wherein said predetermined value is regularly updated.
22. (New) A method according to claim 17, wherein said transmission quality is represented by a signal-to-interference ratio.
23. (New) A method according to claim 17, wherein said mobile radiocommunication system is of CDMA type.
24. (New) A method according to claim 17, wherein said power control is performed in the uplink transmission direction of said mobile radiocommunication system.
25. (New) A method according to claim 17, wherein said power control is performed in the downlink transmission direction of said mobile radiocommunication system.
26. (New) A mobile station comprising, for performing a method according to claim 24, means for performing one step of changing the transmit power according to a corresponding change in the required transmission quality target value, upon the occurrence of a significant change in the required transmit power.
27. (New) A mobile station according to claim 26, comprising means for performing said step of changing the transmit power according to a corresponding change in the required transmission quality target value, in addition to a step of changing the transmit power according to the power control step of the power control algorithm.

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28. (New) A mobile station according to claim 26, wherein said means include a look-up table, containing predetermined values of corresponding changes in the required transmission quality target value, corresponding to different significant changes in the required transmit power.

29. (New) A mobile radiocommunication network entity comprising, for performing a method according to claim 24, means for correspondingly changing the required transmission quality target value, upon the occurrence of a significant change in the required transmit power.

30. (New) A mobile radiocommunication network entity according to claim 29, wherein said means include a look-up table, containing predetermined values of corresponding changes in the required transmission quality target value, corresponding to different significant changes in the required transmit power.

31. (New) A mobile radiocommunication network entity comprising, for performing a method according to claim 25, means for performing one step of changing the transmit power according to a corresponding change in the required transmission quality target value, upon the occurrence of a significant change in the required transmit power.

32. (New) A mobile radiocommunication network entity according to claim 31, comprising means for performing said step of changing the transmit power according to a corresponding change in the required transmission quality target value, in addition to a step of changing the transmit power according to the power control step of the power control algorithm.

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33. (New) A mobile radiocommunication network entity according to claim 31, wherein said means include a look-up table, containing predetermined values of corresponding changes in the required transmission quality target value, corresponding to different significant changes in the required transmit power.

34. (New) A mobile station comprising, for performing a method according to claim 24, means for correspondingly changing the required transmission quality target value, upon the occurrence of a significant change in the required transmit power.

35. (New) A mobile station according to claim 34, wherein said means include a look-up table, containing predetermined values of corresponding changes in the required transmission quality target value, corresponding to different significant changes in the required transmit power.

36. (New) A mobile station according to claim 28, comprising means for receiving values to be stored in said look-up table, said values being communicated by the network.

37. (New) A mobile radiocommunication network entity comprising, for performing a method according to claim 24, means for communicating said corresponding change in the required transmission quality target value, to mobile stations.

38. (New) A mobile radiocommunication network entity comprising, for performing a method according to claim 24, means for communicating to mobile stations values to be stored in a look-up table containing predetermined values of corresponding changes in the required

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transmission quality target value, corresponding to different significant changes in the required transmit power.

39. (New) A mobile radiocommunication network entity according to claim 38, further including means for regularly updating said communicated values, on the basis of a quality estimation carried out at the network side.

40. (New) A mobile radiocommunication network entity according to claim 33, comprising means for receiving values to be stored in said look-up table, said values being communicated by mobile stations.

41. (New) A mobile station comprising, for performing a method according to claim 25, means for communicating said corresponding change in the required transmission quality target value, to a mobile radiocommunication network entity .

42. (New) A mobile station comprising, for performing a method according to claim 25, means for communicating to a mobile radiocommunication network entity values to be stored in a look-up table containing predetermined values of corresponding changes in the required transmission quality target value, corresponding to different significant changes in the required transmit power.

43. (New) A mobile station according to claim 41, further including means for regularly updating said communicated values, on the basis of a quality estimation carried out at the mobile station side.

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44. (New) A mobile radiocommunication system, including at least one mobile station according to claim 26.

45. (New) A mobile radiocommunication system, including at least one mobile station according to claim 34.

46. (New) A mobile radiocommunication system, including at least one mobile station according claim 41.

47. (New) A mobile radiocommunication system, including at least one mobile radiocommunication network entity according claim 29.

48. (New) A mobile radiocommunication system, including at least one mobile radiocommunication network entity according to claim 31.

49. (New) A mobile radiocommunication system, including at least one mobile radiocommunication network entity according to claim 37.

50. (New) A method according to claim 17, wherein said step of changing the transmit power according to a corresponding change in the required transmission quality target value is performed in addition to a step of changing the transmit power according to the power control step of the power control algorithm.

REMARKS

The above amendment to the first paragraph on page 7 of the specification corrects an obvious error. The correction changing "decreased" makes the involved paragraph consistent with the specification at page 6, lines 25-36. More specifically, a person of ordinary skill in the art knows that, with the usual power control algorithm, the transmit power must be increased by $+\delta$ dB (where δ is the power control step size of the power control algorithm) when an "up" power control command is received, as described at page 6 lines 27-32, or decreased by $+\delta$ dB when a "down" power control command is received, as described at page 6 lines 33-36. This person also would understand that decreased by $-\delta$ dB (as originally written at page 7, line 2) means increased by $+\delta$ dB, which is the contrary of what would be necessary in the case where a "down" power control command is received (as described at page 6, line 33, to page 7, line 2).

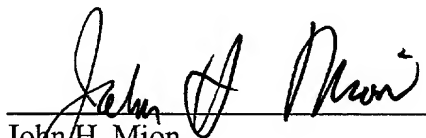
This person also would understand that, without any indication to the contrary, the sign of variation of the transmission rate is the same when there is stated, "if the transmission rate has just changed", at page 6, lines 28 and 34. Therefore, the sign of the variation of $10 \log (SIR_2/SIR_1)$, applied to the transmit power, has to be the same in both cases, i.e., it has to be an increase at page 7, line 2, as well as at page 6, line 32.

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N.B. The Examiner's attention is called to the concurrently filed SUBMISSION OF CORRECTED FORMAL DRAWING enclosing a formal drawing containing the corrections which were made in the prior application.

Entry and consideration of this Amendment are respectfully requested.

Respectfully submitted,



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January 7, 2002

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Amend the specification by inserting before the first line the sentence:

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IN THE CLAIMS:

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Claims 17-50 are added as new claims.

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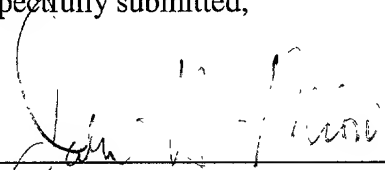
SUBMISSION OF CORRECTED FORMAL DRAWING

Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicant submits herewith three (3) sheets of corrected formal drawing (Figs. 1-5)
whereby all corrections made in prior application No. 09/348,005, are incorporated herein. The
Examiner is respectfully requested to acknowledge receipt of this corrected formal drawing.

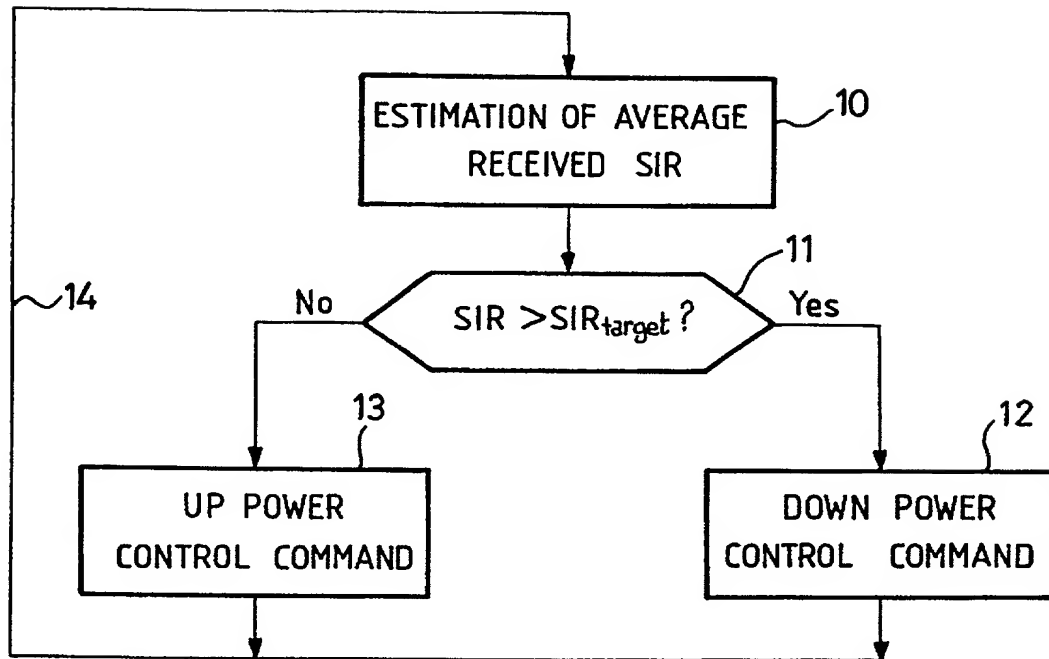
Respectfully submitted,



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FIG_1 PRIOR ART



FIG_2 PRIOR ART

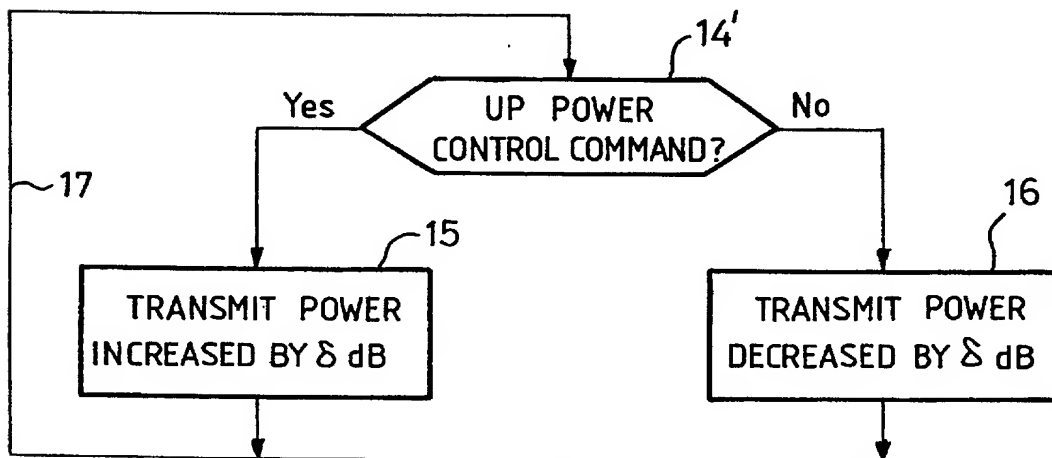
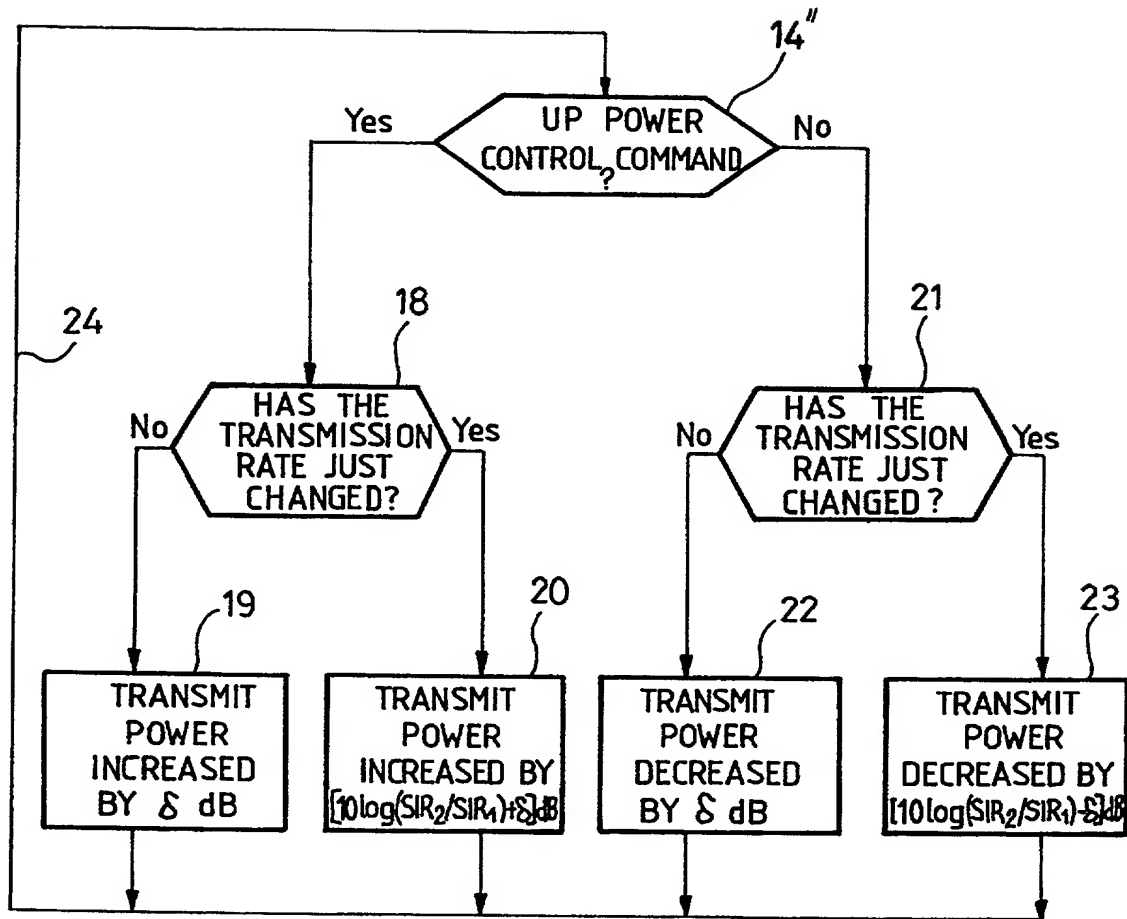
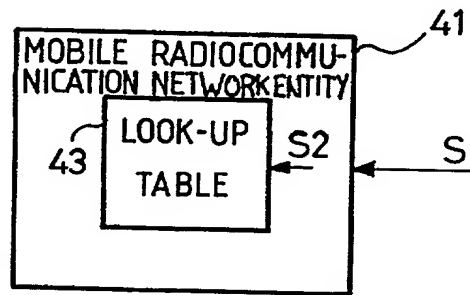
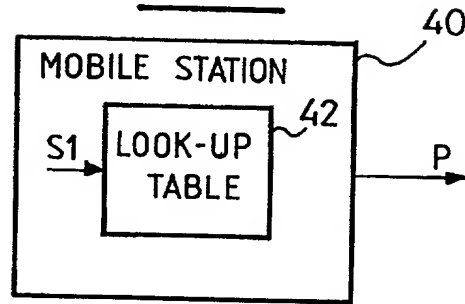


FIG. 3



FIG_4



FIG_5

